

REMARKS

The issues outstanding the Office Action mailed July 18, 2002, are requirement for restriction and the rejections under 35 U.S.C. §112 and 103. Reconsideration of these issues, in view of the following discussion, is respectfully requested.

Requirement for Restriction

At page 2 of the Office Action, Applicants' traversal of the restriction requirement is characterized as simply being the argument that there "would be no further burden to search the other claims." However, this is not the entirety of Applicants' argument, although, indeed, Applicants have alleged and do maintain that there is no additional burden as fully discussed in the Response to Requirement for Restriction filed June 17, 2002. In any event, it is urged that the present Office Action does not give full consideration to Applicants' arguments concerning the relationship of the claims as combination to subcombination. It is submitted that this relationship, as discussed fully in the Response to the Requirement Restriction, militates withdrawing their requirement for restriction inasmuch as 2-way distinctness, required in such a situation, cannot be shown herein. It is submitted that any subsequent Office Action, if it does not withdraw the requirement for restriction, must comment on this aspect of Applicants' argument.

Rejection Under 35 U.S.C. §112

Claims 1-11 and 17-20 have been rejected under 35 U.S.C. §112, second paragraph. Applicants thank the Examiner for the thoughtful review of the present claims. Various grammatical and typographical amendments have been made to the claims, which do not change the scope of the claims either literally or for purposes of the doctrine of equivalents. It is submitted that these amendments render this rejection moot. Although the majority of the amendments are believed to be self-explanatory, it is noted that the change requested at page 2 of the Office Action to claim 3, line 3, was previously made in the Preliminary Amendment.

Rejection Under 35 U.S.C. §103

Claims 1-11 and 17-20 have been rejected under 35 U.S.C. §103 over Yamawaki et

al. '284 taken with Chauvin et al. '591. Reconsideration of this rejection is respectfully requested.


As submitted at page 3 of the Office Action, Yamawaki lacks the disclosure of preconditioning the mixture of catalyst components in a solvent. In order to remedy this deficiency, the Office Action cites Chauvin, which is alleged to disclose a catalyst composition "reacted over a range of temperatures before use. . .". Applicants do not understand the connection between "reaction" and preconditioning of the catalyst as disclosed and claimed herein. In any event, however, it is submitted that one of ordinary skill in the art would not combine the teachings of Chauvin with Yamawaki, inasmuch as different nickel components are employed therein. Yamawaki employs a "first catalyst component" prepared by reacting a fluorine-containing acid with a basic salt of a metal of group VIII of the periodic table. The material has the formula $M_1(M'F_n)_m \cdot xL$, wherein M is cobalt, nickel or iron, M' is an element of group III-V of the periodic table and L is a ligand. By contrast, Chauvin employs a catalyst containing a nickel component which is nickel acetylacetonate and/or a nickel carboxylic acid. See col. 1, lines 55-56. It is not seen that one of ordinary skill in the art would combine any treatment disclosed for the different nickel component of the secondary reference, with the catalyst of the primary reference. In order to highlight this difference, the present claims have been amended in order clarify the nature of the nickel component of the present catalyst. Although the amended claims thus change the scope of the nickel catalyst, it is submitted that the scope of the other components of the catalyst composition is not changed by the amendment, either literally or for purposes of the doctrine of equivalents. It is further submitted that, just as the difference in the character of the nickel components militates against transferring any process steps of Chauvin to the composition of Yamawaki, the difference also establishes no motivation to substitute the nickel component of the secondary reference into the composition of Yamawaki, in view of the unpredictable nature of catalysts.

Moreover, it is submitted that the use of the preconditioning treatment is further non-obvious, in view of the unexpected results demonstrated in the present specification. For instance, example 1, a comparative catalyst, is prepared without preconditioning. Example 2 prepares a catalyst also containing an identical amount of the same nickel compound, combined with the same amount of alkylaluminum compound and Bronsted acid. The

comparative catalyst of example 1, which lacks pretreatment, results in 67% conversion of propylene into a mixture containing 80% by weight of dimers. By contrast, the catalyst of the invention prepared in example 2 results in 86% conversion of propylene into a comparable mixture. Thus, substantially increased conversion is achievable with a catalyst in accordance with the invention. It is submitted that such unexpectedly improved conversion, attributable solely to the pretreatment, provides further evidence of the non-obviousness of the presently claimed composition.

The claims of the application are submitted to be in condition for allowance. However, should the Examiner have any questions or comments, he is cordially invited to telephone the undersigned at the number indicated below.

Respectfully submitted,

 (33,03) for
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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please amend claims 1, 2, 3, 4, 6 and 8 as follows:

1. (Twice Amended) A catalytic composition, comprising a product resulting from bringing the following three constituents into contact in any order:

- a) a least one divalent nickel compound of the formula



where R_1 is an alkyl, cycoalkyl, alkenyl, aryl, aralkyl or alkaryl radical containing up to 20 carbon atoms;

b) at least one ~~hydrocarbylaluminium~~ hydrocarbylaluminum dihalide with formula $AIRX_2$, where R is a hydrocarbyl radical containing 1 to 12 carbon atoms ~~such as alkyl, aryl, aralkyl or cycloalkyl~~, and X is a chlorine or bromine atom; and

- c) at least one organic Bronsted acid;

the mixture obtained being pre-conditioned in a solvent, ~~at a controlled temperature and for a pre-set period~~, in an inert atmosphere at a temperature of 0 to 80°C, for 1 minute to 5 hours, prior to its use as a catalyst.

2. (Twice Amended) A catalytic composition according to claim 1 ~~wherein~~ 21, wherein said divalent nickel compound is a nickel carboxylate with ~~general~~ the formula:



where R_1 is an alkyl, cycloalkyl, alkenyl, aryl, aralkyl or alkaryl radical containing up to to carbon atoms.

3. (Twice Amended) A catalytic composition according to claim 1 wherein the pK_a of said organic Bronsted acid is a maximum of 3 at 20°C and is a halogencarboxylic

compounds acid of the formula R_2COOH where R_2 is a halogenated alkyl radical.

4. (Twice Amended) A catalytic composition according to claim 3 wherein said organic Bronsted acid is a halogenoacetic acid ~~with~~ of formula $CX_pH_{3p}-COOH$ ~~is used~~ where X is fluorine, chlorine, bromine or iodine, and p is a whole number from 1 to 3.

6. (Twice Amended) A catalytic composition according to claim 4 ~~21~~, wherein the preconditioning comprises mixing the three constituents in a hydrocarbon or halogenohydrocarbon solvent with stirring and in an inert atmosphere at a controlled temperature of $0^{\circ}C$ to $80^{\circ}C$ and for a duration of 1 minute to 5 hours.

8. (Twice Amended) A catalytic composition according to claim 1 wherein said hydrocarbylaluminum dihalide ~~is enriched with~~ contains an aluminum trihalide, the mixture of these two compounds having formula AlR_nX_{3-n} , R and X being as defined in claim 1 and where n is a number between 0 and 1.